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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/630,771

07/31/2003

Seo Kwang Kim

HI-0154

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34610 7590 11/27/2007
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EXAMINER

DU, THUAN N

ART UNIT

PAPER NUMBER

2116

MAIL DATE

DELIVERY MODE

11/27/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/630,771

Applicant(s)

KIM, SEO KWANG

Examiner

Thuan N. Du

Art Unit

2116

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-7,10-21,24-30 and 34-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21 and 24-30 is/are allowed.
- 6) ☒ Claim(s) 1,4-7,11-20,34,35,37 and 39 is/are rejected.
- 7) ☒ Claim(s) 3,10,36,38 and 40 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. It is hereby acknowledged that the following papers have been received and placed of record in the file: Amendment (dated 8/31/07).

2. Claims 2, 8, 9, 22, 23 and 31-33 have been canceled. Claims 35-40 have been added. Claims 1, 3-7, 10-21, 24-30 and 34-40 are presented for examination.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 4-7, 11-16, 34, 35 and 37 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Reneris, U.S. Patent No. 5,784,628 in view of Shiell et al. [Shiell], U.S. Patent No. 6,065,125.

5. As per claim 1, Reneris teaches an apparatus for managing power in a computer system, the apparatus comprising:

an operation system (14) configured to set up a power mode of the computer system [col. 8, lines 46-51], wherein the power mode includes at least one of an operating mode or a reduced power mode [col. 9, lines 42-44];

at least one device (22a-22n) configured to perform specific functions and operations [col. 6, lines 15-32];

at least one device driver (23a-23n) configured to control operations of the device [col. 6, lines 33-34], wherein the device driver is configured to change a power mode of the device

among the at least one of an operating mode or a reduced power mode [col. 11, lines 9-12; col. 14, lines 37-40]; and

a filter driver (40c) coupled to the operation system [Figs. 2, 3], wherein the filter driver is configured to generate a signal [col. 8, lines 6-15] to cause the device driver to individually change the power mode of the device to operate in the reduced power mode [col. 8, lines 64-67; col. 10, lines 61-64] when the computer system is in the operating mode [col. 11, lines 9-12], the filter driver generating said signal based on:

a status of a queue for storing input/output request packets (IRPs) generated by one or more control circuits [col. 14, lines 40-47], at least one of which includes an input/output device manager [col. 8, lines 7-9]; and

a control procedure which includes:

detecting that the device is in an idle state for a predetermined amount of time [col. 10, lines 27-30],

after said detecting, determining an accumulated amount of time the device has been in the idle state,

comparing the accumulated amount of time to a predetermined time, and

based on a result of said detecting [col. 10, lines 43-48] and the status of the queue [col. 14, lines 40-47], controlling the device to operate in the reduced power mode independently from the computer system continuing in the operating mode [col. 8, lines 64-67; col. 13, lines 51-61].

Reneris does not explicitly teach the determining an accumulated amount of time the device has been in the idle state, and comparing the accumulated amount of time to a predetermined time. However, one of ordinary skill in the art would have recognized that the

teachings of detecting the device has been idle for a predetermined amount of time (i.e. 5 minutes or 10 minute) [col. 10, lines 27-30, 44-47] would implicitly include the step of comparing a determined accumulated amount of time to a predetermined time (5 or 10 minutes).

Even if the teachings of Reneris not conceded by applicant, Shiell teaches a power management system comprising a timer and a comparator for comparing an accumulated amount of time the device has been in idle state to a predetermined time and controlling the device to operate in a reduce power mode based on a result of the comparison [col. 4, lines 49-56]. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Reneris and Shiell because they both directed to placing a device in a reduced power mode when the device is in idle state. Shiell's teaching of comparing an accumulated amount of time the device has been in idle state to a predetermined time and controlling the device to operate in a reduced power mode based on a result of the comparison would decrease the power consumed by the device by accurately determine when the device should be placed in the power reduced mode.

6. As per claim 4, Reneris teaches that the filter driver generates and outputs a FIRP (False I/O request packet) (power down IRP is the claimed FIRP) configured to change the power mode of the device from the operating mode to the reduced power mode [col. 14, lines 40-42]

7. As per claim 5, Reneris teaches that the "device" is used to referred to any computer subsystem or peripheral device which obviously includes a sound card [col. 6, lines 15-32], wherein each device includes its own device driver [col. 6, lines 34-37].

8. As per claim 34, Reneris teaches that the power mode is one of a standby mode, a suspend mode, or a power down mode [col. 14, lines 55-65].

9. As per claim 35, Reneris teaches that the filter driver controls the device to operate in the reduced power mode independently from the computer system continuing in the operating mode [col. 14, lines 37-40] when the accumulated amount of time is greater than the predetermined time [col. 10, lines 29-30] and the status of the queue is empty of IRPs (the queue will be empty when all IRPs are processed) [col. 14, lines 44-45] generated by said one or more control circuits [col. 8, lines 7-8].

10. As per claim 6, Reneris teaches a method comprising:

operating a computer system in first (normal mode) and second power modes (suspend or hibernate) [col. 9, lines 42-44];

operating devices in the computer system in the first or the second power modes [col. 14, lines 53-65]; and

changing a power mode of one of the devices from the first power mode to the second power mode when the computer system is in the first power mode [col. 11, lines 9-12; col. 8, lines 64-67; col. 14, lines 37-40], said changing including:

detecting a status of a queue for storing input/output request packets (IRPs) generated by one or more control circuits [col. 14, lines 40-47], at least one of which includes an input/output device manager [col. 8, lines 7-9]; and

implementing a control procedure which includes:

detecting that the device is in an idle state for a predetermined amount of time [col. 10, lines 27-30],

after said detecting, determining an accumulated amount of time the device has been in the idle state,

comparing the accumulated amount of time to a predetermined time, and based on a result of said detecting [col. 10, lines 43-48] and the status of the queue [col. 14, lines 40-47], controlling the device to operate in the reduced power mode independently from the computer system continuing in the operating mode [col. 8, lines 64-67; col. 13, lines 51-61].

Reneris does not explicitly teach the determining an accumulated amount of time the device has been in the idle state, and comparing the accumulated amount of time to a predetermined time. However, one of ordinary skill in the art would have recognized that the teachings of detecting the device has been idle for a predetermined amount of time (i.e. 5 minutes or 10 minute) [col. 10, lines 27-30, 44-47] would implicitly include the step of comparing a determined accumulated amount of time to a predetermined time (5 or 10 minutes).

Even if the teachings of Reneris not conceded by applicant, Shiell teaches a power management system comprising a timer and a comparator for comparing an accumulated amount of time the device has been in idle state to a predetermined time and controlling the device to operate in a reduce power mode based on a result of the comparison [col. 4, lines 49-56]. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Reneris and Shiell because they both directed to placing a device in a reduced power mode when the device is in idle state. Shiell's teaching of comparing an accumulated amount of time the device has been in idle state to a predetermined time and controlling the device to operate in a reduced power mode based on a result of the comparison would decrease the power consumed by the device by accurately determine when the device should be placed in the power reduced mode.

11. As per claim 7, Reneris that the first mode is an operating mode [col. 14, line 55] and the second mode is a power down mode [col. 14, lines 63-65].
12. As per claim 11, Reneris teaches the changing comprises:
generating a control message at a filter driver (40c) [col. 8, lines 6-9]; and
transferring the control message to the device [col. 6, lines 9-10].
13. As per claim 12, Reneris teaches that the changing comprising:
generating a False I/O request packet (FIRP) similar to an I/O request packet of the computer system at a filter driver (power down IRP is the claimed FIRP) when the accumulated amount of time is greater than the prescribed amount [col. 10, lines 27-30, 58-64]; and
transferring the FIRP to the corresponding device [col. 8, lines 9-10].
14. As per claim 13, Reneris teaches that the device is powered down only after being idle for a predetermined amount of time [col. 10, lines 29-30]. Therefore, inherently, the device is still operated in the first mode if the accumulated time is not greater than the prescribed amount.
15. As per claim 14, Reneris that the prescribed amount has a first timeout value in a battery mode [col. 10, lines 44-46, 51-52], a second timeout value in a performance mode [col. 10, lines 46-48, 65-67], and the prescribed amount varies according to an object device [col. 10, lines 44-48], and wherein the prescribed amount or said at least one device is set by a user or preset [col. 10, lines 44-48].
16. As per claim 15, Reneris teaches the changing comprising:
generating, at an operation system, a power control message corresponding to the system power mode and outputting the power control message to the device [col. 10, lines 59-63];

changing or determining a power state of the device to set up desired power states according to a kind of the power control message [col. 10, lines 62-64]; and

dispatching the computer system based on a new power status [col. 11, lines 23-35].

17. As per claim 16, Reneris teaches that the device is individually controlled [col. 8, lines 64-67]. Therefore, any number of devices would obviously be independently controlled to operate in the second power mode when the computer system is in the first power mode.

18. As per claim 37, Reneris teaches that the changing includes changing the device to operate in the second power mode independently from the computer system continuing in the first power mode [col. 14, lines 37-40] when the accumulated amount of time is greater than the predetermined time [col. 10, lines 29-30] and the status of the queue is empty of IRPs (the queue will be empty when all IRPs are processed) [col. 14, lines 44-45] generated by said one or more control circuits [col. 8, lines 7-8].

19. Claims 17-20 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reneris, U.S. Patent No. 5,784,628 in view of Shiell et al. [Shiell], U.S. Patent No. 6,065,125.

20. As per claim 17, Reneris teaches a method for managing power in a computer system, the method comprising:

detecting at least one device that is in an idle (not in use) when a power mode of the computer system is in an operating mode [col. 14, lines 38-40];

detecting a status of a queue for storing input/output request packets (IRPs) [col. 14, lines 40-43] generated by one or more control circuits [col. 8, lines 5-9]; and

changing a power mode of the device from the operating mode to a power down mode based on the status of the queue and when the device is in the idle state [col. 14, lines 37-47].

Reneris does not explicitly teach that idle time of the device in idle state is determined and the power state of the device is changed based on the idle state is not reset for a predetermined time. One of ordinary skill in the art would have readily recognized that when an activity is detected, the idle state is reset; when no activity detected, the idle state is not reset; therefore, idle state is not reset for a predetermined time = no activity for a predetermined time.

Shiell teaches idle time of a device in idle state is determined when the computer system is in an operating mode [col. 2, lines 35-36; col. 4, lines 52-54] and changing a power mode of the device from the operating mode to a power down mode when the idle state is not reset for a predetermined time [col. 4, lines 55-56].

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Reneris and Shiell because they both directed to placing a device in a reduced power mode when the device is in idle state. Shiell's teaching of changing the power state of the device when the idle state is not reset for a predetermined time would increase the integrity of the system.

21. As per claim 18, Shiell teaches a power manager provides a timer for checking respective devices in the idle states and changes the state of the device after the predetermined time lapses [col. 4, lines 49-56]. Reneris teaches the power state is changed by a filter driver (40c) [col. 8, lines 6-8].

22. As per claim 19, Reneris that the prescribed amount has a first timeout value in a battery mode [col. 10, lines 44-46, 51-52], a second timeout value in a performance mode [col. 10, lines

46-48, 65-67], and the prescribed amount varies according to an object device [col. 10, lines 44-48], and wherein the prescribed amount or said at least one device is set by a user or preset [col. 10, lines 44-48].

23. As per claim 20, Shiell teaches that the device is returned back to normal operation when required [col. 4, lines 65-67]. One of ordinary skill in the art would have recognized that the timer would obviously reset or reinitialized upon the device is returned back to normal operation for determining the idle time of the next idle state of the device.

24. As per claim 39, Shiell teaches that changing the power mode of the device from the operating mode to a power down mode when the idle state is not reset for a predetermined time [col. 4, lines 55-56]. Reneris teaches that changing the power mode of the device from the operating mode to a power down mode when the status of the queue is empty of IRPs (the queue will be empty when all IRPs are processed) [col. 14, lines 44-45] generated by said one or more control circuits [col. 8, lines 7-8].

Allowable Subject Matter

25. Claims 3, 10, 36, 38 and 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

26. Claims 21 and 24-30 are allowed.

Conclusion

27. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuan N. Du whose telephone number is (571) 272-3673. The examiner can normally be reached on Monday-Friday: 7:30 AM - 4:00 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rehana Perveen can be reached at (571) 272-3676.

Central TC telephone number is (571) 272-2100.

The fax number for the organization is (571) 273-8300.

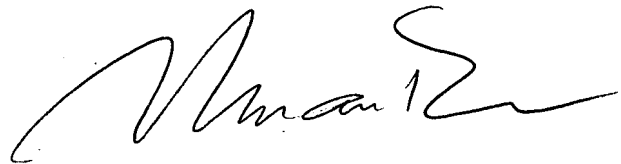
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

TD
November 19, 2007

A handwritten signature in black ink, appearing to read 'Thuan N. Du', with a stylized flourish at the end.

THUAN N. DU
PRIMARY EXAMINER